

FIG. 1A

Mouse Microtro	1	ATGGCCAAGTATGGGACCTTGAAGCCAGGCCTGATGATGGGCAGAACGA	50
Human Microtro	1	ATGGCCAAGTATGGGACCAATGAAGCCAGTCTTGACAATGGGCAGAACGA	50
Canine Microtr	1	ATGGCCAAGTATGGGACCAATGAAGCCAGTCTTGATAATGGGCAGAACGA	50
		***** ** * ***** ** * *****	
Mouse Microtro	51	ATTGAGTGACATCATTAAGTCCAGATCTGATGAACACAATGATGTACAGA	100
Human Microtro	51	ATTGAGTGATATCATTAAGTCCAGATCTGATGAACACAATGACGTACAGA	100
Canine Microtr	51	ATTGAGTGACATCATTAAGTCCAGATCTGATGAACACAATGACGTGCAGA	100
		***** ***** ** * ***** ** * *****	
Mouse Microtro	101	AGAAAACCTTTACCAATGGATAAACGCTCGATTTTCCAAGAGTGGGAAA	150
Human Microtro	101	AGAAAACCTTTACCAATGGATAAATGCTCGATTTTCAAAGAGTGGGAAA	150
Canine Microtr	101	AGAAAACCTTTACCAATGGATCAATGCCGATTTTCAAAGAGTGGGAAA	150
		***** ***** ** * ***** ** * *****	
Mouse Microtro	151	CCACCCATCAGTGATATGTTCTCAGACCTCAAAGATGGGAGAAAGCTCTT	200
Human Microtro	151	CCACCCATCAATGATATGTTACAGACCTCAAAGATGGAAGGAAGCTATT	200
Canine Microtr	151	CCACCCATCAATGATATGTTACAGACCTCAAAGATGGAAGGAAGCTCCT	200
		***** ***** ** * ***** ** * *****	
Mouse Microtro	201	GGATCTTCTGAAGGCCTCACAGGAACATCATTTGCCAAAGGAACGTGGTT	250
Human Microtro	201	GGATCTTCTAGAAGGCCTCACAGGAACATCACTGCCAAAGGAACGTGGTT	250
Canine Microtr	201	GGATCTTCTGAAGGCCTCACAGGAACATCACTGCCAAAGGAACGTGGTT	250
		***** ***** ** * ***** ** * *****	



FIG. 1C

Mouse Microtroutro	501	CAGTCAAGTCAACGTCCTCAACTTCACCACCAGCTGGACCGATGGACTCG	550
Human Microtroutro	501	CAGCCAAAGTCAACGTCCTCAACTTCACCACCAGCTGGACAGATGGACTCG	550
Canine Microtroutro	501	CAGCCAGGTCAACGTCCTCAACTTCACCACCAGCTGGACAGATGGACTGG	550
		*** ** *****	***** *
Mouse Microtroutro	551	CGTTCAACGCCGTGCTCCACCGGCACAAACCAGATCTCTTCGACTGGGAC	600
Human Microtroutro	551	CCTTTAATGCTGTCTCCACCGACATAAACCTGATCTCTTCAGCTGGGAT	600
Canine Microtroutro	551	CCTTTAATGCTGTGCTGCACCGACATAAACCTGATCTCTTCAGCTGGGAT	600
		* ** ** ** * ** * ** * ** * ** * ** * ** * ** * ** * ** *	*****
Mouse Microtroutro	601	GAGATGGTCAAAATGTCCCCAATTGAGAGACTTGACCATGCTTTTGACAA	650
Human Microtroutro	601	AAAGTTGTCAAAATGTCAACCAATTGAGAGACTTGAACATGCCCTTCAGCAA	650
Canine Microtroutro	601	AGAGTTGTCAAAATGTCCCCAATTGAGAGACTTGAACATGCCCTTCAGCAA	650
		* ** * ** * ** * ** * ** * ** * ** * ** * ** * ** * ** *	***
Mouse Microtroutro	651	GGCCACACACTTCTTTGGGAATTGAAAAGCTCCTAAGTCCTGAAACTGTTG	700
Human Microtroutro	651	GGCTCAAACTTATTTGGGAATTGAAAAGCTGTAGATCCTGAAGATGTTG	700
Canine Microtroutro	651	AGCTCAAACTTATTTGGGAATTGAAAAGCTGTAGATCCTGAAGATGTTG	700
		** ** ** * ** * ** * ** * ** * ** * ** * ** * ** * ** *	*****
Mouse Microtroutro	701	CTGTGCATCTCCCTGACAAGAAATCCATAATTATGTATTTAACGTCCTG	750
Human Microtroutro	701	CCGTTGGCTTCTCTGACAAGAAATCCATAATTATGTATTTAACATCTTTG	750
Canine Microtroutro	701	CCGTTCAACTTCTCTGACAAGAAATCCATAATTATGTATTTAACATCTTTG	750
		* ** * ** * ** * ** * ** * ** * ** * ** * ** * ** * ** *	*****

FIG. 1D

Mouse Microtroutro	751	TTTGAGGTGCTTCTCAGCAAGTCACGATAGATGCCATCCGAGAGGTGA	800
Human Microtroutro	751	TTTGAGGTGCTTACCTCAGCAAGTCACCATAGACGCCATCCGTGAGGTAGA	800
Canine Microtroutro	751	TTTGAGGTGCTTCTCAGCAAGTCACCTAGATGCCATCCGTGAAGTAGA	800
		*****	*****
Mouse Microtroutro	801	GACTCTCCCAAGGAAGTATAAGAAAGAAATGTGAAGAGGAAGAAATTCATA	850
Human Microtroutro	801	GACACTCCCAAGGAAGTATAAGAAAGAAATGTGAAGAGGAAGCAATTAATA	850
Canine Microtroutro	801	GACACTCCCAAGGAAGTATAAGAAAGAAATGTGAAGAGGAAGATTAGTA	850
		*****	*****
Mouse Microtroutro	851	TCCAGAGTGCAAGTGGCAGAGGAAGGCCAGAGTCCCCGAGCTGAGACC	900
Human Microtroutro	851	TACAGAGTACAGCGCCTGAGGAGGAGCATGAGAGTCCCCGAGCTGAAACT	900
Canine Microtroutro	851	TACAGAGTCAAGCGCCAGAGGAGGAGCATGAGTGTCCCCGAGCTGAAACC	900
		*****	*****
Mouse Microtroutro	901	CCTAGCACCGTCACTGAAGTGGACATGGATTTGGACAGCTACCAGATAGC	950
Human Microtroutro	901	CCCAGCACTGTCACTGAGGTGACATGGATCTGGACAGCTATCAGATTGC	950
Canine Microtroutro	901	CCCAGCACTGTCACTGAAGTTGACACGGATCTGGACAGCTATCAGATAGC	950
		*****	*****
Mouse Microtroutro	951	GCTAGAGGAAGTGCTGACGTGGCTGCTGCCGGGAGGACACGTTCCAGG	1000
Human Microtroutro	951	GTTGGAGGAAGTGCTGACCTGGTTGCTTTCTGTGAGGACACTTCCAGG	1000
Canine Microtroutro	951	ACTGGAGGAAGTGCTGACCTGGTTGCTTTCTGCCGAGGACACTTCCAGG	1000
		*****	*****

FIG. 1E

```
Mouse Microutro 1001 AGCAACATGACATTTCTGATGATGTCGAAGAAGTCAAAGAGCAGTTTGCT 1050
Human Microutro 1001 AGCAGGATGATATTTCTGATGATGTTGAAGAAGTCAAAGACCAGTTTGCA 1050
Canine Microutr 1001 AGCAGGATGACATTTCTGATGATGTAGAAGAAGTCAAAGAGCAGTTTACT 1050
**** *
*****
***** *
***** *

Mouse Microutro 1051 ACCCATGAAACTTTTATGATGGAGCTGACAGCACACCAGAGCAGCGTGGG 1100
Human Microutro 1051 ACCCATGAAGCTTTTATGATGGAAGTGAAGTCAACACCAGAGCAGTGTGGG 1100
Canine Microutr 1051 ACCCATGAAGCTTTTATGATGGAGCTGACAGCGCACACCAGAGCAGTGTGGG 1100
*****
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***** *
*****

Mouse Microutro 1101 GAGCGTCCTGCGAGGTGGCAACCAGCTGATGACACAAGGGACTCTGTCCA 1150
Human Microutro 1101 CAGCGTCCTGCGAGGCGAGGCAACCAACTGATAACACAAGGAAGTCTGTCTCAG 1150
Canine Microutr 1101 CAGTGTCTCTGCAGGCGAGGAAACCAGCTGATAACGCAAGGAAGTCTGTCTCAG 1150
** *****
** *****
** *****

Mouse Microutro 1151 GAGAGGAGGAGTTTGAGATCCAGGAACAGATGACCTTGCTGAATGCAAGG 1200
Human Microutro 1151 ACCAAGAAGATTTGAGATTCAGGAACAGATGACCTTGCTGAATGCTAGA 1200
Canine Microutr 1151 ATGAGGAGGAATTTGAAATTCAGGAACAAATGACCTTGCTAAATGCTAGA 1200
** ** *
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Mouse Microutro 1201 TGGGAGGCGCTCCGGGTGGAGAGCATGGAGAGGCAGTCCCGGCTGCACGA 1250
Human Microutro 1201 TGGGAGGCTCTTAGGGTGGAGAGTATGGACAGACAGTCCCGGCTGCACGA 1250
Canine Microutr 1201 TGGGAGGCACTCAGGGTGGATAGTATGAACACAGACAGTCCCGGCTGCATGA 1250
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FIG. 1F

```
Mouse Microutro 1251 CGCTCTGATGGAGCTGCAGAAGAAACAGCTGCAGCAGCTCTCAAGCTGGC 1300
Human Microutro 1251 TGTGCTGATGGAACCTGCAGAAGAAAGCAACTGCAGCAGCTCTCCGCCCTGGT 1300
Canine Microutr 1251 TGTGTTGATGGAACCTACAAAAGAACAGCTTGCACACAGCTCTCTGCCTGGT 1300
* . ***** ** ** ***** ** ***** ***** ****
Mouse Microutro 1301 TGGCCCTCACAGAAGAGCGCATTTCAGAAGATGGAGAGCCTCCCGCTGGGT 1350
Human Microutro 1301 TAACACTCACAGAGGAGCGCATTTCAGAAGATGGAAACTTCCCCCCTGGAT 1350
Canine Microutr 1301 TAACACTCACAGAAGAACGCGCATTTCAGAAGATGGAAACCTGCCCCCTGGAT 1350
* * ***** ** ***** ***** ***** * **** *
Mouse Microutro 1351 GATGACCTGCCCTCCCTGCAGAAGCTGCTTCAAGAACATATAAAGTTTCCA 1400
Human Microutro 1351 GATGATGTAAATCTCTACAAAAGCTGCTAGAAGAACATATAAAGTTTCCA 1400
Canine Microutr 1351 GATGATTAAATCCCTACAAAAGCTACTAGAAGATCATAAACGTTTCCA 1400
***** * ** ** ** ***** ** ***** ***** *****
Mouse Microutro 1401 AAATGACCTTGAAGCTGAACAGGTGAAGGTAATTCCTTAACTCACATGG 1450
Human Microutro 1401 AAGTGATCTTGAGGCTGAACAGGTGAAGTAATTCCTTAACTCACATGG 1450
Canine Microutr 1401 AAATGATCTTGAGGCGGAACAGGTGAAGGTAATTCCTTAACTCACATGG 1450
** *** ***** ** ***** ***** ***** *****
Mouse Microutro 1451 TGGTGATTGTGGATGAAAACAGTGGGAGAGTGCCACAGCTCTTCTGGAA 1500
Human Microutro 1451 TGGTCATTGTTGATGAAAACAGTGGTGAGAGCGGTACAGCTATCCTAGAA 1500
Canine Microutr 1451 TGGTGATTGTTGATGAAAACAGTGGTGAGAGTGCCACTGCTGTTCTGGAA 1500
**** ***** ***** ***** ***** ** ** ** * ** *
```

FIG. 1G

```
Mouse Microtro 1501 GATCAGTTACAGAAACTGGGTGAGCGCTGGACAGCTGTATGCCGCTGGAC 1550
Human Microtro 1501 GACCAGTTACAGAACTTGGTGAAGCGCTGGACAGCAGTATGCCGTTGGAC 1550
Canine Microtr 1501 GATCAGTTACAGAACTTGGTGAAGCGCTGGACAGCAGTGTGCCGTTGGAC 1550
** ***** **
** ***** **
** ***** **

Mouse Microtro 1551 TGAAGAACGTTGGAACAGGTTGCAAGAAATCAGTATTCTGTGGCAGGAAT 1600
Human Microtro 1551 TGAAGAACGTTGGAATAGGTTACAAGAAATCAATATATTGTGGCAGGAAT 1600
Canine Microtr 1551 AGAGGAACGTTGGAGTAGGCTACAAGAAATTAATATATTGTGGCAGGAAT 1600
** ***** **
** ***** **
** ***** **

Mouse Microtro 1601 TATTGGAAGAGCAGTGTCTGTTGGAGGCTTGGCTCACCGAAAAGGAAGAG 1650
Human Microtro 1601 TATTGGAAGAACAGTGTCTGTTGAAAGCTTGGTTAACCGAAAAGGAAGAG 1650
Canine Microtr 1601 TATTAGAAGAACAGTGTCTGTTGAAAGCTTGGCTAACTGAAAAAGGAAGAG 1650
**** *****
**** *****
**** *****

Mouse Microtro 1651 GCTTTGGATAAAGTTCAAACCAGCAACTTTAAAGACCAGAAAGGAACTAAG 1700
Human Microtro 1651 GCTTTAAATAAAGTCCAGACAAGCAACTTCAAAGACCACAAAAGGAACTAAG 1700
Canine Microtr 1651 GCCTTAAATAAAGTCCAGACGAGCAACTTCAAAGACCACAAAAGGAACTAAG 1700
** ** ***** **
** ** ***** **
** ** ***** **

Mouse Microtro 1701 TGTCAGTGTCCGGCGTCTGGCTATATTGAAGGAAGACATGGAATGAAGA 1750
Human Microtro 1701 TGTCAGTGTTCGACGCTCTGGCTATTTTGAAGGAAGACATGGAATGAAGC 1750
Canine Microtr 1701 TGTCAGCATCCGACGATTGGCTATTTTGAAGGAAGACATGGAATGAAC 1750
***** * ** **
***** *****
```

FIG. 1H

```
Mouse Microutro 1751 GGCAGACTCTGGATCAACTGAGTGAGATTGGCCAGGATGTGGGCCAATTA 1800
Human Microutro 1751 GTCAAACATTGGATCAGCTGAGTGAGATTGGCCAGGATGTGGGACAATTA 1800
Canine Microutr 1751 GTCAGGCATTGGATCAGCTGAGTGAGATTGGCCAGGATGTGGGCCAATTA 1800
* ** * *****
* ** * *****
* ** * *****

Mouse Microutro 1801 CTCAGTAATCCCAAGGCATCTAAGAAGATGAACAGTGACTCTGAGGAGCT 1850
Human Microutro 1801 CTTGATAAATCCCAAGGCATCTAAGAAGATCAACAGTGACTCAGAGGAACT 1850
Canine Microutr 1801 GTTGATAATCCCAAGGCATCTAAGAAGATCAACAGTGACTCAGAGGAACT 1850
* **** *****
* **** *****
* **** *****

Mouse Microutro 1851 AACACAGAGATGGGATTCTCTGGTTCAGAGACTCGAAGACTCTTCTAACC 1900
Human Microutro 1851 GACTCAAAGATGGGATTCTTTGGTTCAGAGACTAGAAGATTCTCTCAACC 1900
Canine Microutr 1851 AACTCAGAGATGGGATTCTTTGGTTCAGAGACTAGAAGATTCTCTAGCC 1900
** ** *****
** ** *****
** ** *****

Mouse Microutro 1901 AGGTGACTCAGGCGGTAGCGAAGCTCGGCGATGTCCAGATTCCACAGAAG 1950
Human Microutro 1901 AGGTGACTCAGGCTGTAGCAAAAGCTGGGGATGTCTCAGATTCTCTCAGAAG 1950
Canine Microutr 1901 AGGTGACTCAGGCTGTGGCAAAGCTGGGGATGTCCCAAATTCCTCAGAAA 1950
*****
*****
*****

Mouse Microutro 1951 GACCTATTGGAGACCGTTTCATGTGAGAGAACAAAGGATGGTGAAGAAGCC 2000
Human Microutro 1951 GACCTTTTGGAGACTGTTTCGTGTAAGAGAACAAAGCAATTACAAAAAATC 2000
Canine Microutr 1951 GATCTTCTGGAGACTGTTTCGCATAAGAGAACAAAGTAACTACAAAAAAGTC 2000
** ** *****
** ** *****
** ** *****
```



Mouse	Microtrio	2001	CAAGCAGGAAC	TGCCTCCTCCTCC	CCCCACCA	AAAGAGACAGATTC	CACG	2050
Human	Microtrio	2001	TAAGCAGGAAC	TGCCTCCTCCTCC	CCCCAA	AAAGAGACAGATTC	CATG	2050
Canine	Microtrio	2001	TAAGCAAGAAC	TGCCTCCTCCTCC	CCCCAA	AAAGAGACAGATTC	CTTG	2050
			****	*****	*****	**	*****	*
Mouse	Microtrio	2051	TGGACTTAGAGAA	ACTCCGAGACCTG	CAGGGAGCTATG	GACGACCTGGAC		2100
Human	Microtrio	2051	TGGATTGGAGAA	ACTCAGAGACCTG	CAGGGAGCTATG	GATGACCTGGAC		2100
Canine	Microtrio	2051	TGGATCTGGAGAA	GCTCAGAGACCTG	CAGGGAGCCATG	GATGACCTGGAT		2100
			***	*	****	***	*****	****
Mouse	Microtrio	2101	GCAGACATGAAG	AGGTGGAGGCTGT	CGGGAATGGCTG	GGAAGCCCGTGGG		2150
Human	Microtrio	2101	GCTGACATGAAG	AGGCAGAGTCCGT	CGGGAATGGCTG	GGAAGCCCGTGGG		2150
Canine	Microtrio	2101	GTTGACATGAAG	AGGCGGAGGCTGT	GAGGAATGGCTG	GGAAGCCGTGTGGG		2150
			*	*****	*****	***	*****	****
Mouse	Microtrio	2151	AGACCTGCTTAT	AGACTCCCTGCAGG	ATCACATCGAGAA	AAACCCCTGGCGT		2200
Human	Microtrio	2151	AGACTTACTCAT	TGACTCGCTGCAGG	ATCACATTGAAAA	AAATCATGGCAT		2200
Canine	Microtrio	2151	AGACTTACTTAT	CGACTCACTGCAGG	ATCACATTGAAAA	AAACCATGGCAT		2200
			****	*	**	*****	*****	*
Mouse	Microtrio	2201	TTAGAGAGAAAT	TGCACCAATCAAC	TTAAAAAGTAAAA	AAACAATGAATGAC		2250
Human	Microtrio	2201	TTAGAGAGAAAT	TGCACCAATCAAC	TTAAAGTAAAA	ACGGTGAATGAT		2250
Canine	Microtrio	2201	TTAGAGAGAAAT	TGCACCAATCAAC	TTAAAGTAAAA	ACAGTGAATGAT		2250
			*****	*****	*****	*	*****	*****

FIG. 1J

```
Mouse Microtro 2251 CTGTCCAGTCAGTGTCTCCACTTGACTTGCAATCCATCTCTAAAGATGTC 2300
Human Microtro 2251 TTATCCAGTCAGTGTCTCCACTTGACCTGCATCCCTCTCTAAAGATGTC 2300
Canine Microtr 2251 TTATCCAGTCAGTGTCTCCACTTGACCTGCATCCATCTCTAAAGATGTC 2300
* ***** * ***** * ***** * ***** *
Mouse Microtro 2301 TCGCCAGCTGGATGACCTTAATATGCGATGGAACCTTCTACAGGTTCCG 2350
Human Microtro 2301 TCGCCAGCTAGATGACCTTAATATGCGATGGAACCTTCTACAGGTTCTG 2350
Canine Microtr 2301 TCGCCAGCTAGATGACCTTAATATGCGATGGAACCTTCTGAGGTTTCTG 2350
* ***** * ***** * ***** * ***** *
Mouse Microtro 2351 TGGACGATCGCCTTAAGCAGCTCCAGGAAGCCACAGAGATTTGGGCCA 2400
Human Microtro 2351 TGGATGATCGCCTTAAACAGCTTCAGGAAGCCACAGAGATTTGGACCA 2400
Canine Microtr 2351 TGGATGATCGCCTTAAACAGCTTCAGGAAGCCCATAGAGATTTGGGCCA 2400
* ***** * ***** * ***** * ***** *
Mouse Microtro 2401 TCTTCTCAACACTTTTCTGTCCACTTCAGTCCAGCTGCCGTGGCAGAGATC 2450
Human Microtro 2401 TCCTCTCAGCATTTTCTCTACGTCCAGCTGCCGTGGCAAAGATC 2450
Canine Microtr 2401 TCCTCTCAGCATTTTCTTCTACTTCAGTCCAGCTGCCATGGCAAAGATC 2450
* ***** * ***** * ***** * ***** *
Mouse Microtro 2451 CATTTACATAATAAAGTGCCCTATTACATCAACCATCAAAACACAGACAA 2500
Human Microtro 2451 CATTTACATAATAAAGTGCCCTATTACATCAACCATCAAAACACAGACCA 2500
Canine Microtr 2451 CATTTACATAATAAAGTGCCCTATTACATCAACCATCAAAACACAGACAA 2500
* ***** * ***** * ***** * ***** *
```

FIG. 1K

```
Mouse Microtro 2501 CCTGTTGGGATCATCCTAAAATGACTGAGCTCTTCCAATCCCTTGCTGAT 2550
Human Microtro 2501 CCTGTTGGGACCATCCTAAAATGACCGAACTCTTTCAATCCCTTGCTGAC 2550
Canine Microtr 2501 CTTGTTGGGACCGTCCTAAAATGACTGAATCTTTCAATCTCTTGCTGAC 2550
* **** * **** * **** * **** * **** * **** * **** *
Mouse Microtro 2551 CTGAATAATGTACGTTTCTCTGCCTACCGCACAGCAATCAAAATTCGAAG 2600
Human Microtro 2551 CTGAATAATGTACGTTTCTCTGCCTACCGTACAGCAATCAAAATCCGAAG 2600
Canine Microtr 2551 CTGAATAATGTACGTTTCTCTGCCTACCGTACAGCCATCAAAATCCGAAG 2600
* **** * **** * **** * **** * **** * **** * **** *
Mouse Microtro 2601 GCTGCAAAAAGCATTATGTCTGGATCTCTTAGAGCTGAATACGACGAATG 2650
Human Microtro 2601 ACTACAAAAGCACTATGTTTGGATCTCTTAGAGTTGAGTACAACAAATG 2650
Canine Microtr 2601 ACTACAAAAGCACTGTTTGGATCTCTTAGAGTTGAATACAACAAATG 2650
** **** * **** * **** * **** * **** * **** * **** *
Mouse Microtro 2651 AAGTTTCAAGCAGCACAAACTGAACCAAAATGATCAGCTCCTGAGTGC 2700
Human Microtro 2651 AAATTTCAAAACAGCACAAAGTTGAACCAAAATGACCAAGCTCCTCAGTGT 2700
Canine Microtr 2651 AAGTTTCAAGCAGCACAAACTGAACCAAAATGATCAGCTTCTTAGCGTT 2700
** **** * **** * **** * **** * **** * **** * **** *
Mouse Microtro 2701 CCAGACGTCAATCAACTGTCTGACCACCACCTTACGATGGGCTTGAGCAGCT 2750
Human Microtro 2701 CCAGATGTCAATCAACTGTCTGACAACAATTTATGATGGACTTGAGCAAAAT 2750
Canine Microtr 2701 CCAGATGTCAATCAACTGTCTGACAACAATTTATGATGGTCTTGAACAAAT 2750
**** * **** * **** * **** * **** * **** * **** * *
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FIG. 1L

```
Mouse Microutro 2751 GCACAAGGACTTGGTCAATGTTCCACTCTGCGTCGATATGTGTCTCAACT 2800
Human Microutro 2751 GCATAAGGACCTGGTCAACGTTCCACTCTGTGTGATATGTGTCTCAATT 2800
Canine Microutr 2751 GCATAAGGATCTGGTCAACGTTCCACTCTGTGTGGATATGTGTCTCAACT 2800
*** ***** ***** ** ***** *
Mouse Microutro 2801 GGCTGCTCAACGTATACGACACGGGCGGACTGGAAAAAATTCGGGTACAG 2850
Human Microutro 2801 GGTGCTCAATGCTCTATGACACGGGTGGAACCTGGAAAAATAGAGTGCAG 2850
Canine Microutr 2801 GGTGCTCAATGCTCTATGACACGGGTGGAACCTGGAAAAATAGAGTGCAG 2850
** ***** ** ** ***** * ** **
Mouse Microutro 2851 AGTCTGAAGATTGGATTGATGTCTCTCCAAAGGCCTCTTAGAAGAGAA 2900
Human Microutro 2851 AGTCTGAAGATTGGATTGATGTCTCTCCAAAGGTCTCTTGGAAAGAAA 2900
Canine Microutr 2851 AGTCTGAAGATTGGATTGATGTCTCTCCAAAGGTCTCTTAGAAGAGAAA 2900
***** ***** ***** ***** **
Mouse Microutro 2901 ATACAGATGTCTCTTTAAGGAGGTGGCAGGGCCCAACTGAGATGTGTGACC 2950
Human Microutro 2901 ATACAGATATCTCTTTAAGGAAGTTGCGGGGCCGACAGAAATGTGTGACC 2950
Canine Microutr 2901 ATACAGATATCTCTTTAAGGAGGTGGCAGTCCGACAGAAATGTGTGACC 2950
***** ***** ** ** ** ** *****
Mouse Microutro 2951 AGCGGCAGCTTGGCCCTGCTACTTCACGATGCCATCCAGATCCCTAGGCAG 3000
Human Microutro 2951 AGAGGCAGCTGGGCCCTGTACTTTCATGATGCCATCCAGATCCCCGGCAG 3000
Canine Microutr 2951 AGAGGCAGCTTGGCCCTGTACTTTCATGATGCCATCCAGATCCCTCGGCAG 3000
** ***** ***** ***** ***** *****
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FIG. 1M

```
Mouse Microtro 3001 CTGGGGGAAGTAGCAGCCTTTGGGGGCAGTAACATTGAGCCCAAGTGTCG 3050
Human Microtro 3001 CTAGGTGAAGTAGCAGCCTTTGGAGGCAGTAATATTGAGCCTAGTGTTCG 3050
Canine Microtr 3001 CTGGGGGAAGTAGCAGCCTTTGGGGGCAGTAATATTGAACCCAGTGTTCG 3050
** ** ***** ** ** ***** ** ** ***** **
Mouse Microtro 3051 CAGCTGCTTCCAGCAGAATAACAACAGCCAGAAATCAGTGTGAAGGAGT 3100
Human Microtro 3051 CAGCTGCTTCCAACAGAAATAACAATAAACCCAGAAATAAGTGTGAAGAGT 3100
Canine Microtr 3051 CAGCTGCTTCCAACAGAAATAACAATAAGCCAGAGATAAGCGTAAAGATT 3100
***** ** ***** ** ***** ** ** ** **
Mouse Microtro 3101 TTATAGACTGGATGCATTTGGAACCCAGTCCATGGTGTGGTTGCCGGTT 3150
Human Microtro 3101 TTATAGATTGGATGCATTTGGAACCCAGTCCATGGTTGGCTCCCAGTT 3150
Canine Microtr 3101 TTATAGATTGGATGCGTCTGGAACCCAGTCCATGGTTGGCTGCCAGTT 3150
***** * ***** ***** ** ** *
Mouse Microtro 3151 CTGCATCGGGTCCGAGCTGCTGAGACTGCAAAACATCAGGCCAAATGCAA 3200
Human Microtro 3151 TTACATCGAGTGGCAGCAGCGGAGACTGCAAAACATCAGGCCAAATGCAA 3200
Canine Microtr 3151 TTACACCGAGTGGCTGCAGCTGAGACTGCAAAAGCATCAAGCTAAATGCAA 3200
* ** ** ** * ** ***** ** ***** **
Mouse Microtro 3201 CATCTGCAAGAAGATGCCCGATTGTTGGGTTCAGATACAGGAGCCTAAAGC 3250
Human Microtro 3201 CATCTGTAAAGAATGTCCAATTGTCCGGTTCAGGTATAGAAGCCTTAAGC 3250
Canine Microtr 3201 CATCTGTAAAGAATGTCCAATAGTTGGTTCAGGTATAGAAGCCTAAAGC 3250
***** ***** ** ** ***** ** ** ***** ****
```



FIG. 2A

Canine Microtr	1	MAKYGEHEASPDNGQNEFSDIIKRSDEHNDVQKKTFTKWINARFSKSGK	50
Human Microtroutro	1	MAKYGEHEASPDNGQNEFSDIIKRSDEHNDVQKKTFTKWINARFSKSGK	50
Mouse Microtroutro	1	MAKYGDLEARPDDGQNEFSDIIKRSDEHNDVQKKTFTKWINARFSKSGK	50
		***** ** ** *****	
Canine Microtr	51	PPINDMFTDLKGRKLLDLEGLTGTSLPKERGSTRVHALNNVRVLQVL	100
Human Microtroutro	51	PPINDMFTDLKGRKLLDLEGLTGTSLPKERGSTRVHALNNVRVLQVL	100
Mouse Microtroutro	51	PPISDMFSDLKGRKLLDLEGLTGTSLPKERGSTRVHALNNVRVLQVL	100
		**** ** *****	
Canine Microtr	101	HQNNVDLVNIGGTDIVDGNHKLTLGLLWSIILHWQVKDVMKDVMSDLQQT	150
Human Microtroutro	101	HQNNVELVNIGGTDIVDGNHKLTLGLLWSIILHWQVKDVMKDVMSDLQQT	150
Mouse Microtroutro	101	HQNNVDLVNIGGTDIVAGNPKLTLGLLWSIILHWQVKDVMKDVMSDLQQT	150
		***** ** *****	
Canine Microtr	151	NSEKILLSWVRQSTRPYSQVNVNFTTSWTDGLAFNAVLRHHRKPDLSWD	200
Human Microtroutro	151	NSEKILLSWVRQSTRPYSQVNVNFTTSWTDGLAFNAVLRHHRKPDLSWD	200
Mouse Microtroutro	151	NSEKILLSWVRQSTRPYSQVNVNFTTSWTDGLAFNAVLRHHRKPDLSWD	200
		***** ** *****	
Canine Microtr	201	RVVKMSPIERLEHAFSKAQTLYLGIEKLLDPEDVAVQLPKKSIIMYITSL	250
Human Microtroutro	201	KVVKMSPIERLEHAFSKAQTLYLGIEKLLDPEDVAVQLPKKSIIMYITSL	250
Mouse Microtroutro	201	EMVKMSPIERLDHAFDKAHTSLGIEKLLSPETVAVHLPDKKSIIMYITSL	250
		***** ** *****	

FIG. 2B

Canine Microtr	251	FEVLPQQVTLDAIREVETLPRYKKECEEEISIQSSAPEEEHECPGAET	300
Human Microtr	251	FEVLPQQVTLDAIREVETLPRYKKECEEEAINIQSTAPEEEHESPAET	300
Mouse Microtr	251	FEVLPQQVTLDAIREVETLPRYKKECEEEIHIQSAVLAEEGQSPRAET	300
		*****	
Canine Microtr	301	PSTVTEVDTDLDSYQIALEEVLTWLLSAEDTFQEQQDDISDDVEEVKEQFT	350
Human Microtr	301	PSTVTEVDMDLDSYQIALEEVLTWLLSAEDTFQEQQDDISDDVEEVKDQFA	350
Mouse Microtr	301	PSTVTEVDMDLDSYQIALEEVLTWLLSAEDTFQEQQDDISDDVEEVKEQFA	350
		*****	
Canine Microtr	351	THEAFMMELTAHQSSVGSVLQAGNQLITQGTLSDEEEFEIQEQMTLLNAR	400
Human Microtr	351	THEAFMMELTAHQSSVGSVLQAGNQLITQGTLSDEEEFEIQEQMTLLNAR	400
Mouse Microtr	351	THETFMMELTAHQSSVGSVLQAGNQLMTQGTLSREEEFEIQEQMTLLNAR	400
		*****	
Canine Microtr	401	WEALRVDSMNRQSRHLHDVLMELQKKQLQQLSAWLTLTTEERIQKMETCPLD	450
Human Microtr	401	WEALRVESMDRQSRHLHDVLMELQKKQLQQLSAWLTLTTEERIQKMETCPLD	450
Mouse Microtr	401	WEALRVESMERQSRHLHDALMELQKKQLQQLSSWLALTEERIQKMESLPLG	450
		*****	
Canine Microtr	451	DDLKSLQKLLEDHKRLQNDLEAEQVKVNSLTHMVVIVDENSSESATAVLE	500
Human Microtr	451	DDVKSLQKLLEEHKSLQSDLEAEQVKVNSLTHMVVIVDENSSESATAILE	500
Mouse Microtr	451	DDLPSLQKLQEHKSLQNDLEAEQVKVNSLTHMVVIVDENSSESATALLLE	500
		*****	
Canine Microtr	501	DQLQKLGERWTAVCRWTEERWSRLQEINILWQELLEEQCLLKAWLTEKEE	550
Human Microtr	501	DQLQKLGERWTAVCRWTEERWNRLQEINILWQELLEEQCLLKAWLTEKEE	550
Mouse Microtr	501	DQLQKLGERWTAVCRWTEERWNRLQEISILWQELLEEQCLLEAWLTEKEE	550
		*****	



FIG. 2C

Canine Microutr	551	ALNKVQTSNFKDQKELSVSRRLAILKEDMEMKRQALDQLSEIGQDVGQL	600
Human Microutr	551	ALNKVQTSNFKDQKELSVSRRLAILKEDMEMKRQTLDQLSEIGQDVGQL	600
Mouse Microutr	551	ALDKVQTSNFKDQKELSVSRRLAILKEDMEMKRQTLDQLSEIGQDVGQL	600
		** *****	
Canine Microutr	601	VDNPKASKKINSSEELTQRWDSLVQRLSDSSSQVTOQAVAKLGMSQIPQK	650
Human Microutr	601	LDNSKASKKINSSEELTQRWDSLVQRLSDSSNQVTOQAVAKLGMSQIPQK	650
Mouse Microutr	601	LSNPKASKKINSSEELTQRWDSLVQRLSDSSNQVTOQAVAKLGMSQIPQK	650
		* *****	
Canine Microutr	651	DLLETVRIREQVTTKRSKQELPPPPPKKRQIPVDLEKLRDLQGAMDDLD	700
Human Microutr	651	DLLETVRVREQAITKSKQELPPPPPKKRQIHVDLEKLRDLQGAMDDLD	700
Mouse Microutr	651	DLLETVHVREQGMVKPKQELPPPPPKKRQIHVDLEKLRDLQGAMDDLD	700
		*****	
Canine Microutr	701	VDMKEAEAVRNGWKPVGDLIDSLQDHIEKTMAFREEIAPINLKVKTVND	750
Human Microutr	701	ADMKEAESVRNGWKPVGDLIDSLQDHIEKTMAFREEIAPINFKVKTVND	750
Mouse Microutr	701	ADMKEVEAVRNGWKPVGDLIDSLQDHIEKTLAFREEIAPINLKVKTMND	750
		*****	
Canine Microutr	751	LSSQLSPDLHPSLKMSRQLDDLNMRWKLQVSVDDRLKQLQEAHRDFGP	800
Human Microutr	751	LSSQLSPDLHPSLKMSRQLDDLNMRWKLQVSVDDRLKQLQEAHRDFGP	800
Mouse Microutr	751	LSSQLSPDLHPSLKMSRQLDDLNMRWKLQVSVDDRLKQLQEAHRDFGP	800
		*****	

FIG. 2D

Canine Microutr	801	SSQHFLSTSVQLPWQRSISHNKVPYYINHQITQTTCWDPRPKMTLFFQSLAD	850
Human Microutr	801	SSQHFLSTSVQLPWQRSISHNKVPYYINHQITQTTCWDHPKMTLFFQSLAD	850
Mouse Microutr	801	SSQHFLSTSVQLPWQRSISHNKVPYYINHQITQTTCWDHPKMTLFFQSLAD	850
		*****	
Canine Microutr	851	LNNVRESAYRTAIRRLQKALCLDLLELNTTNEVFQKHKLQNNDQLLSV	900
Human Microutr	851	LNNVRESAYRTAIRRLQKALCLDLLELSTTNEIFQKHKLQNNDQLLSV	900
Mouse Microutr	851	LNNVRESAYRTAIRRLQKALCLDLLELNTTNEVFQKHKLQNNDQLLSV	900
		*****	
Canine Microutr	901	PDVINCLTTTYDGLGELQMHKDLVNVPCLVDMCLNWLNVYDTGRTGKIRVQ	950
Human Microutr	901	PDVINCLTTTYDGLGELQMHKDLVNVPCLVDMCLNWLNVYDTGRTGKIRVQ	950
Mouse Microutr	901	PDVINCLTTTYDGLGELQMHKDLVNVPCLVDMCLNWLNVYDTGRTGKIRVQ	950
		*****	
Canine Microutr	951	SLKIGLMSLSKGLLEEKYRYLFKEVAGPTMCDQRLGLLHDAIQIPRQ	1000
Human Microutr	951	SLKIGLMSLSKGLLEEKYRYLFKEVAGPTMCDQRLGLLHDAIQIPRQ	1000
Mouse Microutr	951	SLKIGLMSLSKGLLEEKYRYLFKEVAGPTMCDQRLGLLHDAIQIPRQ	1000
		*****	
Canine Microutr	1001	IGEVAAFGGGNIIEPSVRSVFQNNNKPEISVKDEFIDWMRLPQSMVWLPV	1050
Human Microutr	1001	IGEVAAFGGGNIIEPSVRSVFQNNNKPEISVKDEFIDWMHLEPQSMVWLPV	1050
Mouse Microutr	1001	IGEVAAFGGGNIIEPSVRSVFQNNNKPEISVKDEFIDWMHLEPQSMVWLPV	1050
		*****	
Canine Microutr	1051	LHRVAAAEATAKHQAKCNICKECPVIGERYRSLKHFNVDVCSCFFSGRTA	1100
Human Microutr	1051	LHRVAAAEATAKHQAKCNICKECPVIGERYRSLKHFNVDVCSCFFSGRTA	1100
Mouse Microutr	1051	LHRVAAAEATAKHQAKCNICKECPVIGERYRSLKHFNVDVCSCFFSGRTA	1100
		*****	

FIG. 2E

Canine Microutr 1101 KGHKLHYPWVEYCIPTTSGEDVRDFTKVLKNKFRSKKYFAKHPRLGYPV 1150  
Human Microutr 1101 KGHKLHYPWVEYCIPTTSGEDVRDFTKVLKNKFRSKKYFAKHPRLGYPV 1150  
Mouse Microutr 1101 KGHKLHYPWVEYCIPTTSGEDVRDFTKVLKNKFRSKKYFAKHPRLGYPV 1150  
\*\*\*\*\*

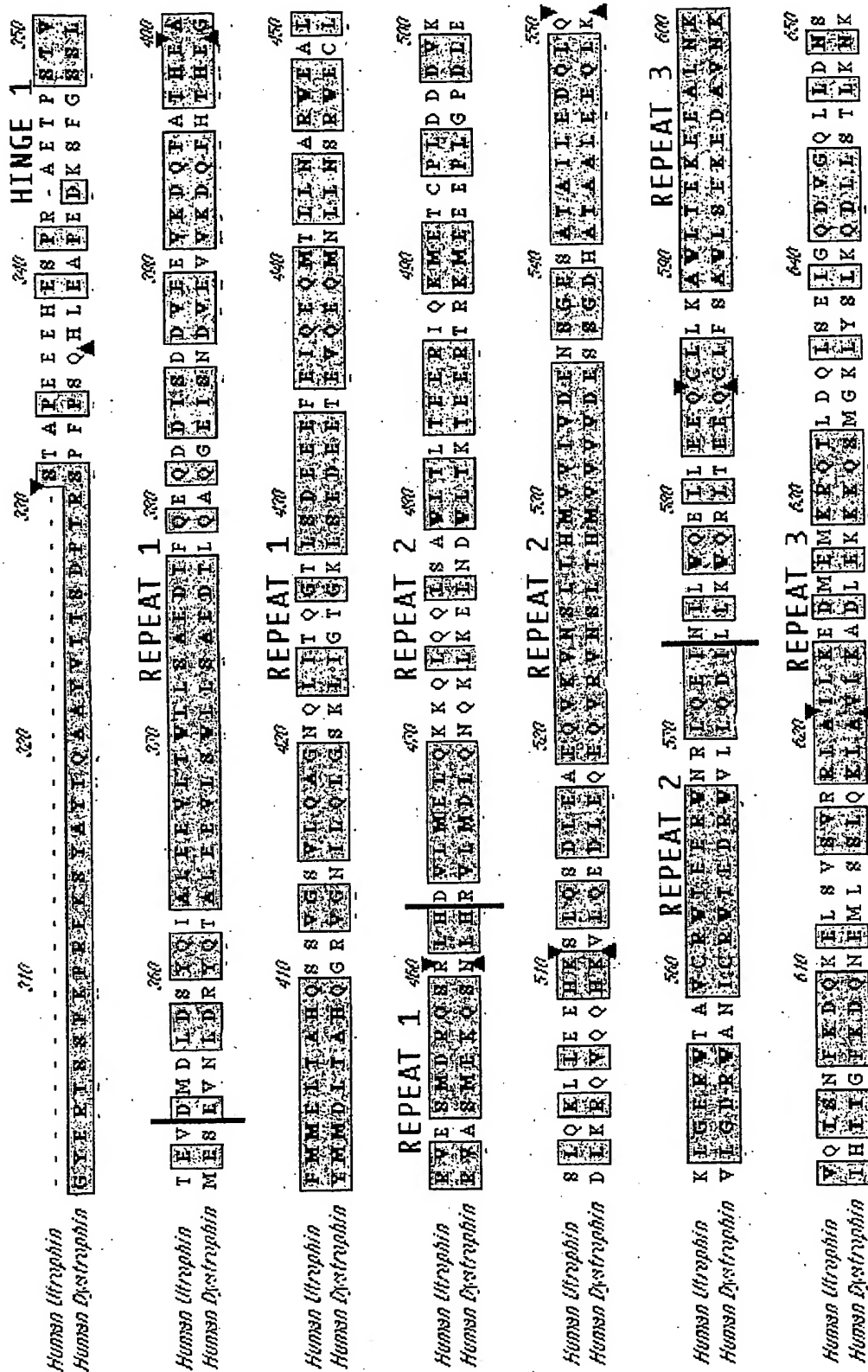
Canine Microutr 1151 QTVLEGDNLETN 1162  
Human Microutr 1151 QTVLEGDNLETN 1162  
Mouse Microutr 1151 QTVLEGDNLETN 1162  
\*\*\*\*\*

## Formatted Alignments

Human Ultraplin	MAKYGFEHFA	PDNGQNEFSD	LIKSEEE	YERHNN	DVQKQK	IFIKVINA	RR	ESKS	GK
Human Dystrophin	MLWWEVE	DC			DVQKQK	IFIKVINA	Q	ESKF	GE
	10	20	30	40	50	60	70	80	90
Human Ultraplin	PPENDM	FLDK	DGERK	LYDLE	GLIG	TST	PEE	FGST	RVHAI
Human Dystrophin	QHLENL	FSDE	QDGR	SLIDLE	GLIG	QKIP	PEE	FGST	RVHAI
	60	70	80	90	100	110	120	130	140
Human Ultraplin	HQNNVFL	YNIG	G	TLLVD	GNRR	LLIG	LLV	S	ILLH
Human Dystrophin	QNNVFL	YNIG	S	EDLV	DGNRR	LLIG	LLV	NN	ILLH
	110	120	130	140	150	160	170	180	190
Human Ultraplin	NREK	ILTS	VTR	QT	TER	PP	YS	QVNV	LNR
Human Dystrophin	NREK	ILTS	VTR	QT	TER	PP	YS	QVNV	LNR
	160	170	180	190	200	210	220	230	240
Human Ultraplin	KVVKMS	-PIE	RIE	HA	TS	SK	KQ	TY	LG
Human Dystrophin	SVVC	QQ	SA	TQ	EL	HA	RI	ARY	Q
	210	220	230	240	250	260	270	280	290
Human Ultraplin	ILE	VL	QQ	QV	TD	A	IR	EV	ET
Human Dystrophin	ILE	VL	QQ	QV	TD	A	IR	EV	ET
	260	270	280	290	300	310	320	330	340

HINGE 1

Fig 3A



F16.3B



Human Ultraphin	1010	1020	1030	1040	1050
Human Dystrophin	L D E I T E N Q K P A L H K K L A E E T K A L E K N V H P D Y E K L T K K Q E F D D V Q G F W N K I K V	L Q S S L Q E Q Q S G L Y Y L L S T T V E E M S E K A P S E I S H K Y Q S E F E F I E G P V K F L S S			
Human Ultraphin	1060	1070	1080	1090	1100
Human Dystrophin	L V S K D L H L L E E I A L T T R A F E A D S T V E E K W M D G V K D F L M K Q Q A A Q G D D A G L	L I V E H C Q K K L E E Q M N K K I R K I Q N H I Q T I L K E W M A E V D V F L K E E W P A L G D S E E G L			
Human Ultraphin	1110	1120	1130	1140	1150
Human Dystrophin	Q R Q L D Q G S A F V N E T E T L E S S R K N M K K E I E T N E R S G P V A G I K K T V Q T R R I G D Y	Q K Q L K Q C R L L V S D L Q T I I Q P S L N S V N H G Q K E E N E A E P E F A S R L E E L K E L			
Human Ultraphin	1160	1170	1180	1190	1200
Human Dystrophin	Q T Q L L E L S K E I A T Q K S R L S E S Q E K A A N L K K D L A T M Q E V M I Q A L E F F Y L E R D	N T Q V L H M C Q Q V Y A R K E A L K G G L E K T V S L Q K D L S E M H E V M I Q A L E F F Y L E R D			
Human Ultraphin	1210	1220	1230	1240	1250
Human Dystrophin	R E X K S T E F L E S A V R L M K P A K E D V L Q K E F V R V K L L K D N T K K L K A A K V P S G G O E	I E Y E T F D E L Q K A V F L M E R A K E L A Q G E H A E Y E L L T E S V N S V I A Q A P P V A Q E			
Human Ultraphin	1260	1270	1280	1290	1300
Human Dystrophin	L T S T L N V V L E N T Q L L C N R T R G C H L M E F V V S C V I H L H Y L D L E T T V I N T	A L K K K E L E T L T N T Q W L C T E L N G C C T L L L P V A C V H E L L S Y L E K A N K E			
Human Ultraphin	1310	1320	1330	1340	1350
Human Dystrophin	L E E P M K S T T V I E E K T D A V N T A L S L E S V L E H P A D N R T Q I R E E I G Q T T I D S G	V E F K L E T T I N I P G G A E E I S V I D S L E E N M E H S E D N P N Q I E I L A Q L L T D G G			

FIG3D

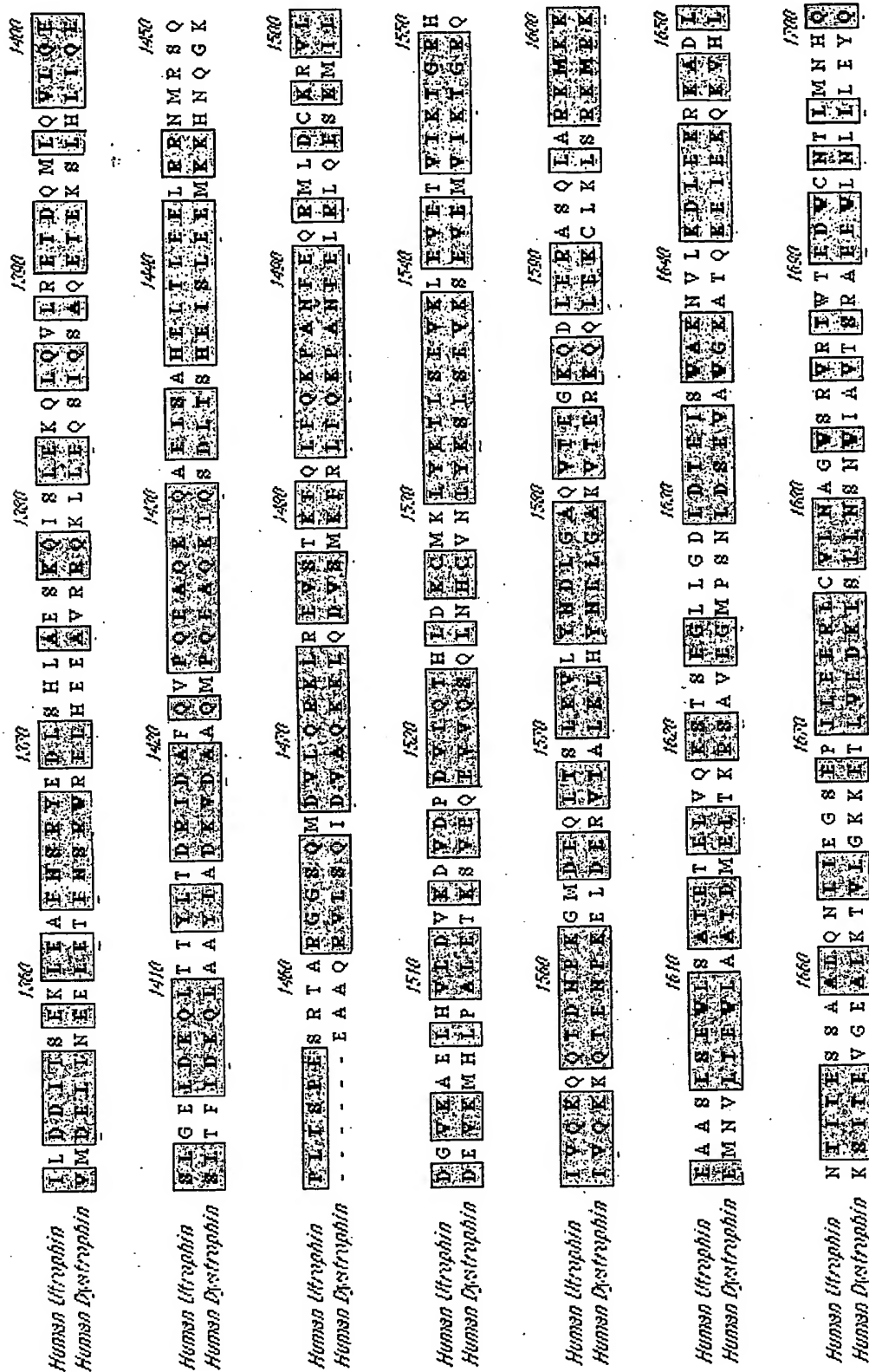
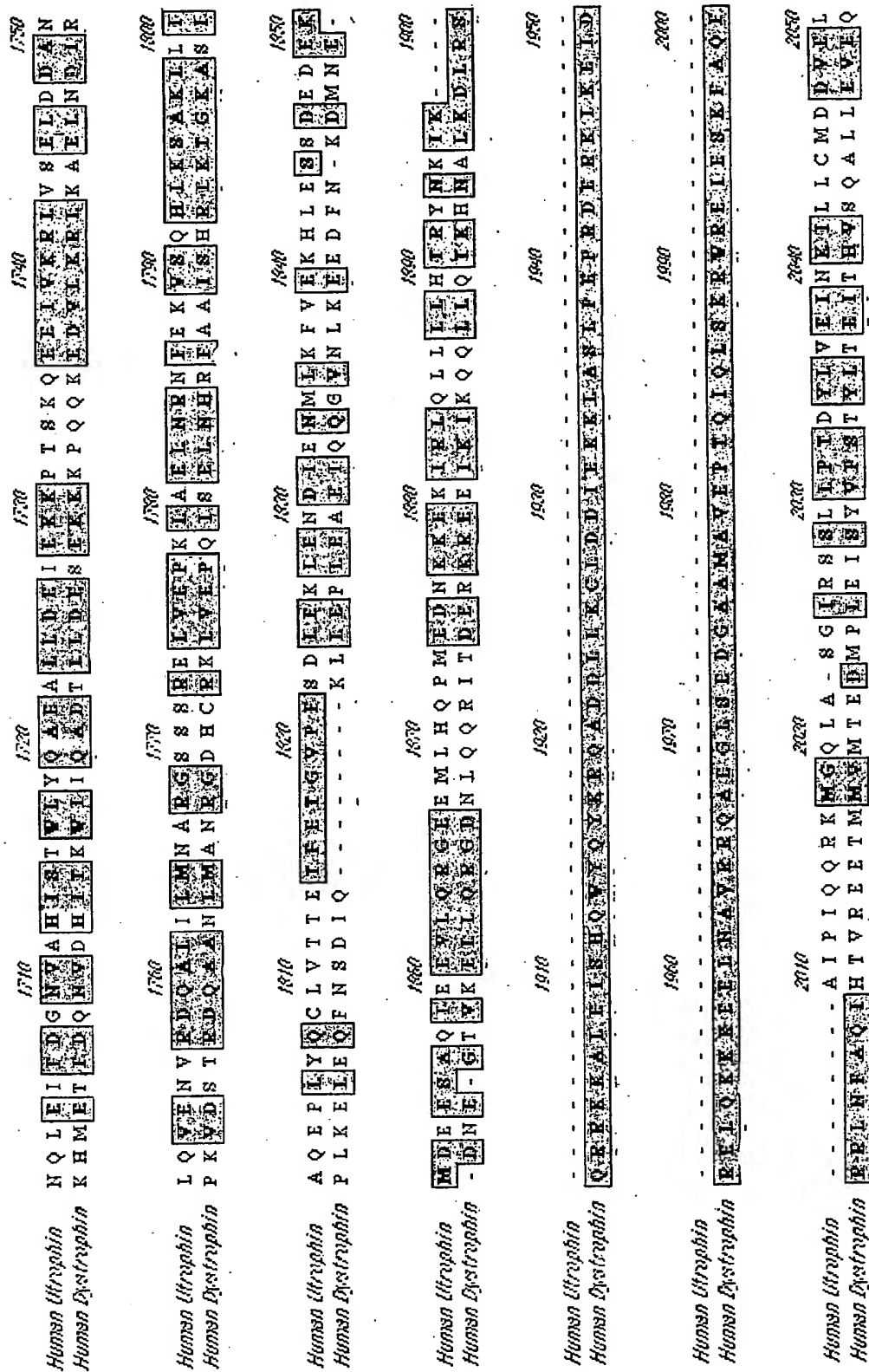


FIG 3E





4364

Human Ultraphin	2060	2070	2080	2090	2100
Human Dystrophin	SINVPFELINTAIVYEDFSSFCQTDNLKKNLEDDQ	EDKLGEEQTAVYHHEQQPDDVTLLEAA	EDKLGEEQTAVYHHEQQPDDVTLLEAA	EDKLGEEQTAVYHHEQQPDDVTLLEAA	EDKLGEEQTAVYHHEQQPDDVTLLEAA
Human Ultraphin	2110	2120	2130	2140	2150
Human Dystrophin	SGPFAATQIRDTTQOLNNAKAVDEANFMYSSVHKKGCFFDPAMFEVPPQFHCDDTNDLI	SGPFAATQIRDTTQOLNNAKAVDEANFMYSSVHKKGCFFDPAMFEVPPQFHCDDTNDLI	SGPFAATQIRDTTQOLNNAKAVDEANFMYSSVHKKGCFFDPAMFEVPPQFHCDDTNDLI	SGPFAATQIRDTTQOLNNAKAVDEANFMYSSVHKKGCFFDPAMFEVPPQFHCDDTNDLI	SGPFAATQIRDTTQOLNNAKAVDEANFMYSSVHKKGCFFDPAMFEVPPQFHCDDTNDLI
Human Ultraphin	2160	2170	2180	2190	2200
Human Dystrophin	TQVITTEAFELIVDTTCAPGGGLPLEKARIRIHQQQEPPEVGLSSHQPPSFAAALNRRIT	TQVITTEAFELIVDTTCAPGGGLPLEKARIRIHQQQEPPEVGLSSHQPPSFAAALNRRIT	TQVITTEAFELIVDTTCAPGGGLPLEKARIRIHQQQEPPEVGLSSHQPPSFAAALNRRIT	TQVITTEAFELIVDTTCAPGGGLPLEKARIRIHQQQEPPEVGLSSHQPPSFAAALNRRIT	TQVITTEAFELIVDTTCAPGGGLPLEKARIRIHQQQEPPEVGLSSHQPPSFAAALNRRIT
Human Ultraphin	2210	2220	2230	2240	2250
Human Dystrophin	GDGIVQKLSQAQDGNFTKKFELAGLNQDQWDAIVAAEVVKDREQPPKRLKGESESKQVMK	GDGIVQKLSQAQDGNFTKKFELAGLNQDQWDAIVAAEVVKDREQPPKRLKGESESKQVMK	GDGIVQKLSQAQDGNFTKKFELAGLNQDQWDAIVAAEVVKDREQPPKRLKGESESKQVMK	GDGIVQKLSQAQDGNFTKKFELAGLNQDQWDAIVAAEVVKDREQPPKRLKGESESKQVMK	GDGIVQKLSQAQDGNFTKKFELAGLNQDQWDAIVAAEVVKDREQPPKRLKGESESKQVMK
Human Ultraphin	2260	2270	2280	2290	2300
Human Dystrophin	YRHQLDDHEIICVLTWLTWTEEAADNAAHAAQKRS--TTELGNNLQEEERDITQEMEVHAE	YRHQLDDHEIICVLTWLTWTEEAADNAAHAAQKRS--TTELGNNLQEEERDITQEMEVHAE	YRHQLDDHEIICVLTWLTWTEEAADNAAHAAQKRS--TTELGNNLQEEERDITQEMEVHAE	YRHQLDDHEIICVLTWLTWTEEAADNAAHAAQKRS--TTELGNNLQEEERDITQEMEVHAE	YRHQLDDHEIICVLTWLTWTEEAADNAAHAAQKRS--TTELGNNLQEEERDITQEMEVHAE
Human Ultraphin	2310	2320	2330	2340	2350
Human Dystrophin	KLVWITNRTELEMTSSDKSLSLPEERDKTISESESLRTVNMMTVNNI	KLVWITNRTELEMTSSDKSLSLPEERDKTISESESLRTVNMMTVNNI	KLVWITNRTELEMTSSDKSLSLPEERDKTISESESLRTVNMMTVNNI	KLVWITNRTELEMTSSDKSLSLPEERDKTISESESLRTVNMMTVNNI	KLVWITNRTELEMTSSDKSLSLPEERDKTISESESLRTVNMMTVNNI
Human Ultraphin	2360	2370	2380	2390	2400
Human Dystrophin	IFAQIXPIIGQIIEKLEFDIEEQLNHLITVLSPIRPHQLLEIYNQPNQEGPFDV	IFAQIXPIIGQIIEKLEFDIEEQLNHLITVLSPIRPHQLLEIYNQPNQEGPFDV	IFAQIXPIIGQIIEKLEFDIEEQLNHLITVLSPIRPHQLLEIYNQPNQEGPFDV	IFAQIXPIIGQIIEKLEFDIEEQLNHLITVLSPIRPHQLLEIYNQPNQEGPFDV	IFAQIXPIIGQIIEKLEFDIEEQLNHLITVLSPIRPHQLLEIYNQPNQEGPFDV

FIG 3A

Human Ultraphin 2410 2420 2430 2440 2450  
 Human Dystrophin 2460 2470 2480 2490 2500  
 Q E E E I L V Q A K Q P L V E F I I S E G Q H L Y K K E F A T Q P V E R K L E D L S S E E V K A V N R L C R E

Human Ultraphin 2510 2520 2530 2540 2550  
 Human Dystrophin 2560 2570 2580 2590 2600  
 V P T T L K E C I Q E P S S V S Q T R I A A H P N V Q K V V L V S S A S D I P V Q S H R  
 L L Q E E E A K Q P D L A P G L T T I G A S P T Q T V T L V T Q P V V T E E T A I S K L E M P S S L

Human Ultraphin 2610 2620 2630 2640 2650  
 Human Dystrophin 2660 2670 2680 2690 2700  
 T S E I S T P A D L D K T I T E L A D V I V L L D Q M I E E N I V T V G D R F E E I N K T I V S E M K I  
 M L E V P A L A D F N R A W I E L T D V L S I L D Q V I E S Q E R V M V G D L E D I N E M I I K Q

Human Ultraphin 2710 2720 2730 2740 2750  
 Human Dystrophin 2760 2770 2780 2790 2800  
 T K A D I E Q R H Q L D Y V F T I A Q N L K K K A S S D M E I A I I L E E V K N Q V D G T Q  
 I M Q D L E Q R P Q L E F I I T A A Q N L K K K T S N Q E A E I I L D E F E R I Q N Q V D E V Q

Human Ultraphin 2810 2820 2830 2840 2850  
 Human Dystrophin 2860 2870 2880 2890 2900  
 H G V E L E Q Q Q L E D M I I H S L Q V D D H R E E T E E L M R K K Y F A P L Y I L Q Q A R R - - D P  
 E H L Q N E R Q Q Q L E T M L K D S T Q V L A K E F A E Q V L G Q A R A K L E S W K E G P Y T Y D A

Human Ultraphin 2910 2920 2930 2940 2950  
 Human Dystrophin 2960 2970 2980 2990 3000  
 L T E Q I S D N Q I L L Q E L G P G D G I V M E F D N V L Q K L L E E Y G S D D I E R N V E E T T E Y  
 I I Q K K I T L I T K Q L A K D E R Q W Q T N V D V A N D L A L K L L R D Y S A D D I E K K V H M I E N

Human Ultraphin 3010 3020 3030 3040 3050  
 Human Dystrophin 3060 3070 3080 3090 3100  
 L K T S V I N I E Q S S A D P Q N A L H A E V R T V Q A S R R D E E N I K V F I Q E A E I T V N L  
 L I N A S V R S I H K R V S E E E A A L H E T H E L L Q Q F P L D L E K F L A P T T E A E I T A N L

FIG 3H



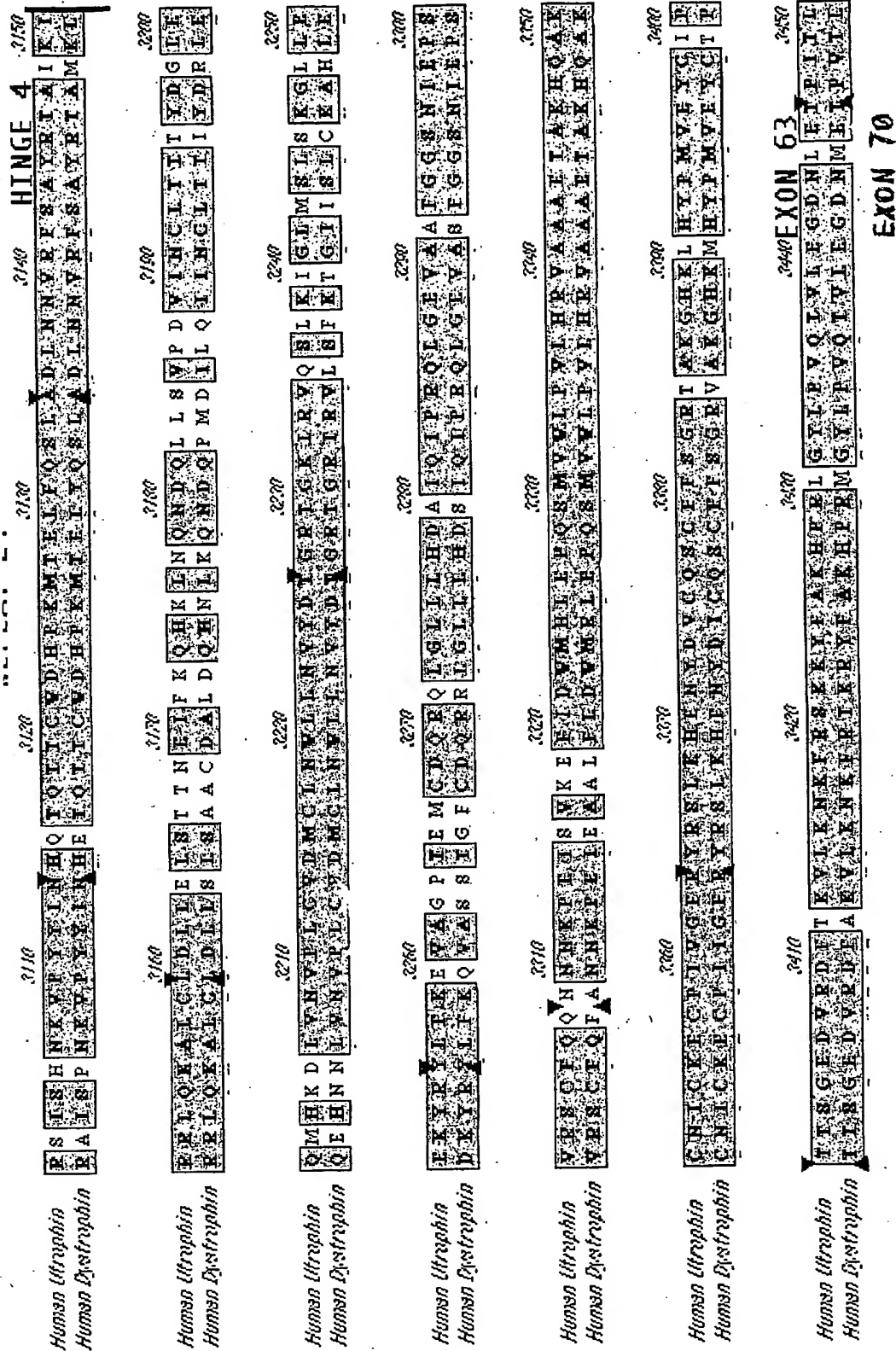


FIG 3J

**EXON 64**

Human Ultraphin  
Human Dystrophin

2460 2470 2480 2490 2500

I S M W E E H Y D P S Q N C Q L F H D D T H S P R I T Q T A T P L A Q M E R T N G S E L I T D S S S T I  
Y I N F W V V D S A P A S W P Q L S H D D T H S P R I H Y A S E L A E M E E N N G S Y L N D S I S P N

**EXON 71**

Human Ultraphin  
Human Dystrophin

2510 2520 2530 2540 2550

G E V E D E H A T I Q Q Y C Q I L G G E S P Y S Q P Q S P A Q P L K V L R F F P G E L L P I I A D  
E S I D D T H L I I Q H Y C Q S L N Q D S R I S Q P R S T A Q L I I S L I S F L R G L L E E L L A D

Human Ultraphin  
Human Dystrophin

2560 2570 2580 2590 2600

L T F E O R N Q W E Y F Q L K D Q H L P R G L T P G S P P E S I I S P H H T S E D S E L I A E A  
L T L E N N N Q A E T D R K Q Q H E H F G L S P L P S P E F E M M P I S P Q S P R D A E E I A F A

Human Ultraphin  
Human Dystrophin

2610 2620 2630 2640 2650

K L I E R Q H K G R L E A R M Q L I T D H N P Q L E S Q L H R I P Q L F Q P E S D S E I N G - - - V  
K L I R Q H K G R L E A R M Q L I T D H N P Q L E S Q L H R I P Q L F Q P E S D S E I N G I T V S

Human Ultraphin  
Human Dystrophin

2660 2670 2680 2690 2700

R P W A S P Q H S A L S Y S L D P D A S G P F H Q A - A G E D I L A T T H A T T S T D D L T E Y M E Q  
S P S T S L Q R S D S S Q P M L L R V V G S Q T S D S M S E E D I L S P P Q D I S T G L E E Y M E Q

Human Ultraphin  
Human Dystrophin

2710 2720 2730 2740 2750

I H S T P P S C C Y N - - - V P S P P Q A M  
L N N S I P S S R G R R H F E G K P M P E D T M

FIG 3K